

The Economic Impact of North Carolina's Wild-Caught Commercial Fishing Industry

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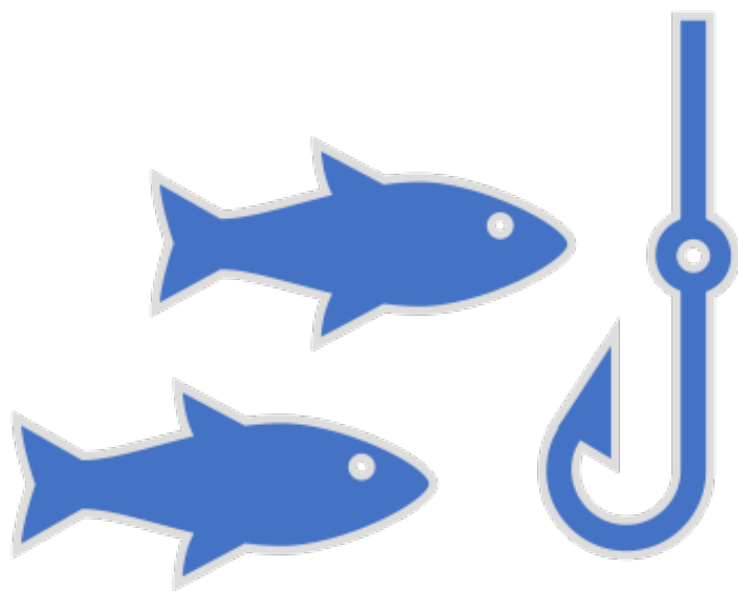
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Funding

N.C. Commercial Fishing Resource Fund
Division of Marine Fisheries



Project Objective

Increase understanding of the economic impact of North Carolina's commercial fisheries through:

1. Collection and analysis of novel cost and supply chain data from harvesting, processing and production sectors.
2. Quantifying demand for local NC seafood.
3. Developing an economic impact assessment of North Carolina's wild-capture seafood industry.

NC. Wild-Caught Seafood: Dimensions of Interest

Sectors:

- Harvesting, processing, wholesalers/dealers, restaurants, retail, and grocery stores

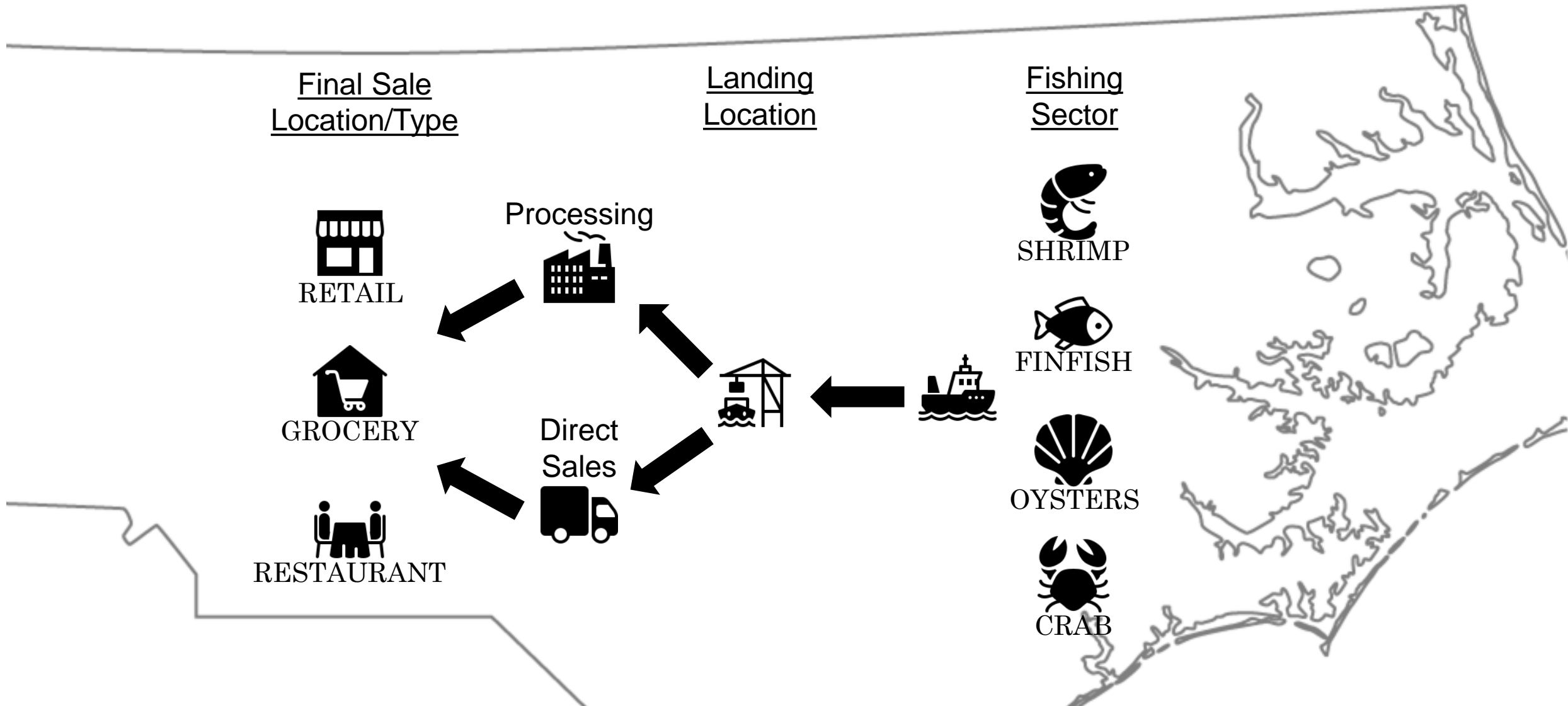
Geography:

- Landings: North, Central, South
- Restaurants/Retail: North Coast, Central Coast, South Coast, Triangle, Triad, Charlotte, western NC

Fish Types:

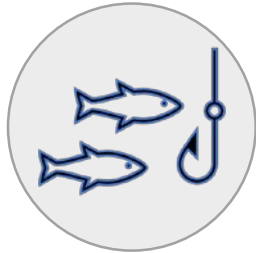
- Finfish, oysters (and other mollusks), shrimp, crab

N.C. Seafood Flow

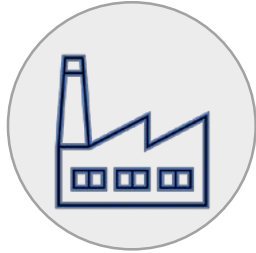


Results: Economic Impact

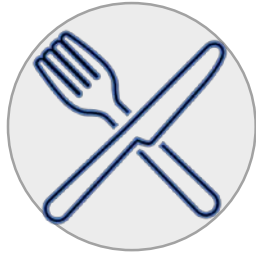
SECTORS



Commercial Fishing: \$155,358,403



Processor/Dealer: \$14,361,011



Restaurants: \$47,293,015

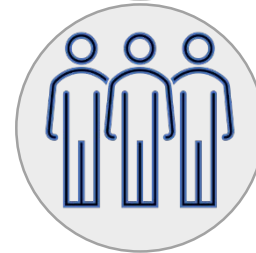


Retail: \$80,308,370

OVERALL



Economic Impact: \$297,320,799








Jobs: 5,528





Notes: Economic impacts represent value-added income for 2019. Value-added is total output for the commercial fishing sector and sales minus the cost of non-labor inputs for other sectors. Jobs represent full-time positions directly employed or supported wild-caught N.C. seafood. Jobs and multipliers are calculated in IMPLAN using 2018 data.

Comparison to Total Sales Measures in Other Models


Our Results (2019)

	\$155,358,403
	\$59,367,413
	\$89,216,997
	\$146,637,547
	\$450,580,361

Base IMPLAN (2018)

	\$115,682,681
	\$22,444,714
	\$10,194,122
	\$32,665,658
	\$180,987,175

NOAA (2017)

	\$165,618,000
	\$54,747,000
	\$77,025,000*
	\$124,256,000
	\$421,646,000

All models are compared in terms of total output, which attempts to measure the total of all the sales made at all the cash registers along the chain. These numbers differ from measures of actual economic impact (value-added) which are provided in the remainder of the report.

**2017 NOAA EIA does not include restaurants; 2012 numbers used instead.

Methods: Sales Estimation



Commercial Fishing: \$86,632,835



Processors/Dealers



Restaurants



Retail

- New data sources:
 - 2019 fish sales estimated by NC DMF
 - Harvester survey data
- Estimation method:
 - Used DMF sales estimation by geography and product type
 - Created custom production functions (overall/region/type) using harvester survey data

Numbers provided are estimated gross N.C. fish or fish product sales for each sector

Methods: Sales Estimation



Commercial Fishing



Processors/Dealer: \$42,875,858



Restaurants



Retail

- New data source:
 - DMF 2019 Dealer Survey
 - Restaurant and Retail Surveys
- Estimation method:
 - Extrapolated survey results of restaurant and retail purchasing decisions to the entire state: \$42,875,858
 - Compare to DMF survey data
 - Aggregation of 199 (of 727 surveyed) dealers: \$20,730,853
 - Reasonably implies 528 non-respondents made sales of: \$22,145,005
 - Compare to harvester survey
 - Increasing harvester sales directly to consumers or markets (29%)
 - Methodology not well suited for including direct sale value

Numbers provided are estimated gross N.C. fish or fish product sales for each sector

Methods: Sales Estimation



Commercial Fishing



Processors/Dealers



Restaurants: \$53,478,014



Retail

- New data source:
 - Restaurant survey
- Estimation method:
 - Matched survey respondents to statewide seafood restaurant/sales database
 - Extrapolated NC fish sales
 - Assume linear relationship to sales
 - Controls for geography
 - Sector results similar to previous EIA estimates using different methodology

Numbers provided are estimated gross N.C. fish or fish product sales for each sector

Methods: Sales Estimation



Commercial Fishing



Processors/Dealers



Restaurants

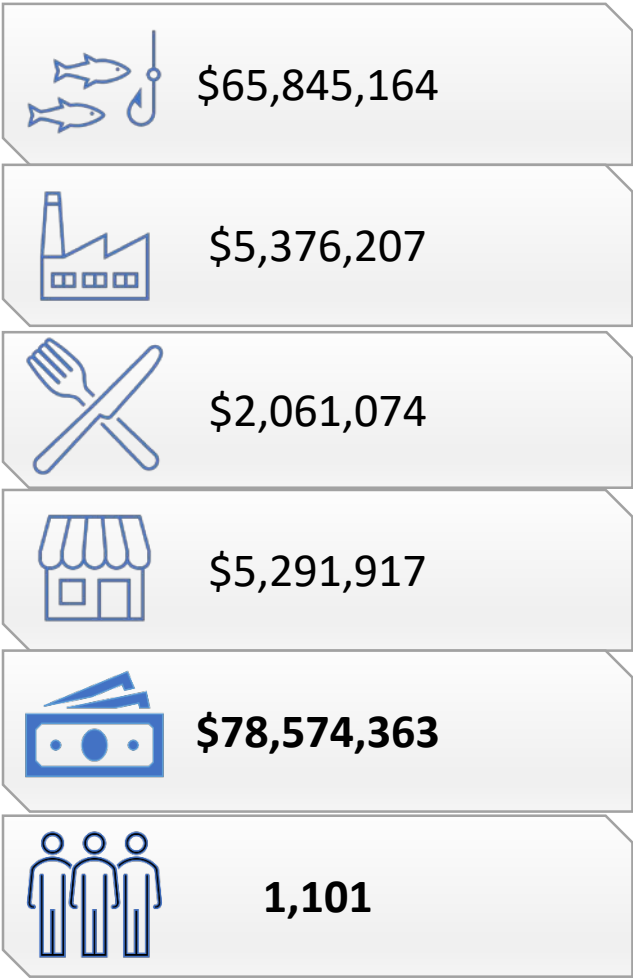


Retail: \$82,438,583

- New data source:
 - Retail survey
- Estimation method:
 - Matched survey respondents to statewide seafood market database
 - Extrapolated N.C. fish sales
 - Assume linear relationship to overall sales
 - Controls for geography
 - Sector results confirm using different methodology prior NOAA results showing large retail impact

Numbers provided are estimated gross N.C. fish or fish product sales for each sector

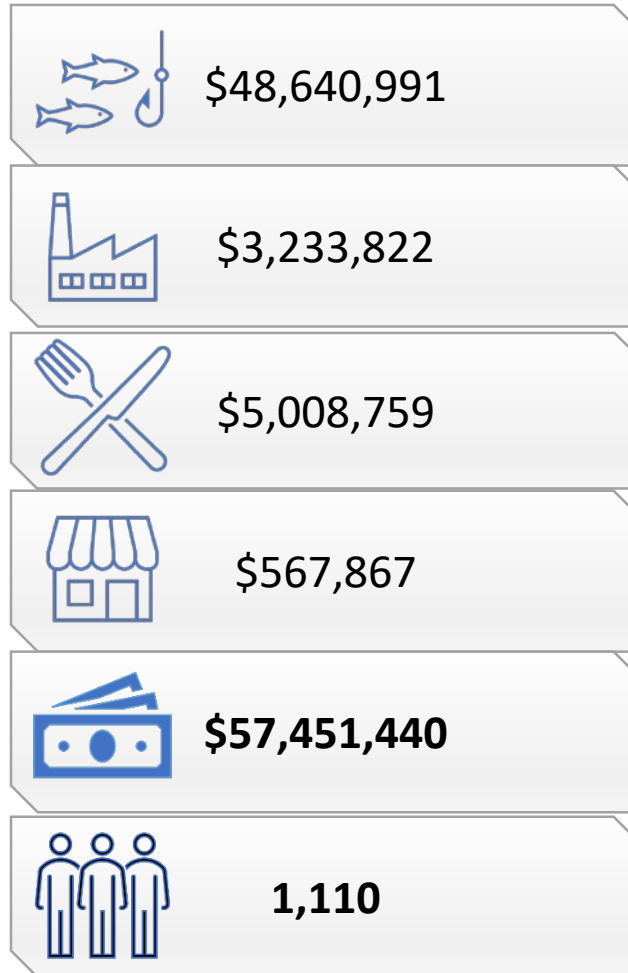
North Coast Economic Impact



Top Five Ports (landings)

City	Landings (lbs)	Landings (\$)
Wanchese	6,843,404	\$12,085,504
Engelhard	2,994,665	\$5,821,504
Swan Quarter	2,929,164	\$4,015,823
Hatteras Island	3,535,208	\$3,329,831
Shiloh	2,352,998	\$2,722,907

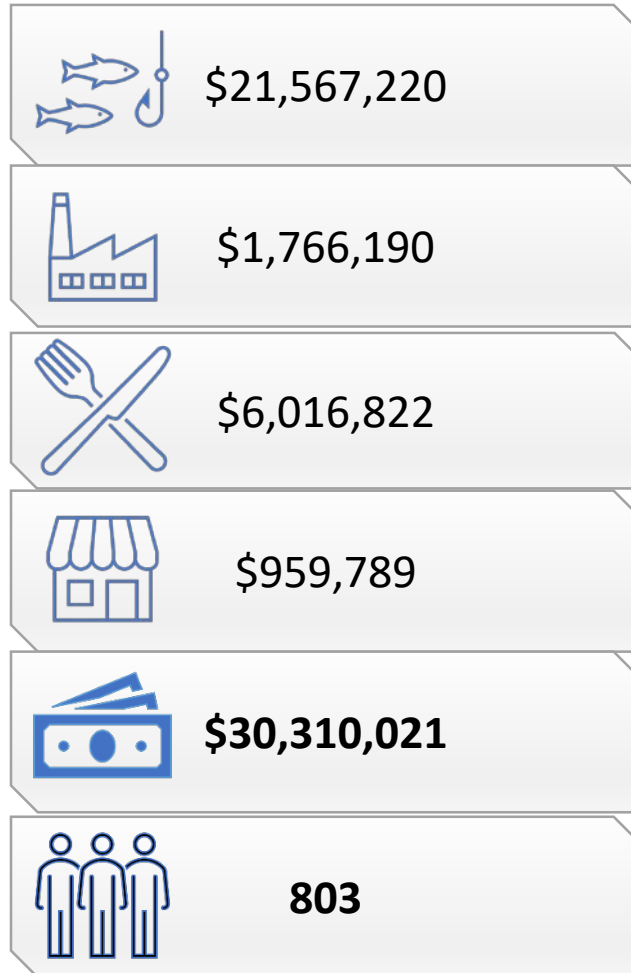
Central Coast Economic Impact



Top Five Ports (landings)

City	Landings (lbs)	Landings (\$)
Morehead City/Beaufort	4,943,937	\$13,043,235
Oriental	2,152,888	\$4,676,438
Hobucken/Lowland	857,346	\$2,366,302
Downeast Communities	1,094,010	\$2,094,356
Aurora/Blounts Creek	623,497	\$742,857

South Coast Economic Impact



Top Five Ports (landings)

City	Landings (lbs)	Landings (\$)
Sneads Ferry	1,174,210	\$2,789,571
Wilmington Area	1,046,577	\$2,302,859
Shallotte	752,042	\$2,287,429
Hampstead	479,113	\$977,533
Southport	265,542	\$777,847

N.C. Impact: Finfish



Quick Stats on Southern Flounder Harvesters

Participants: 910

Trips: 13,305

Vessels: 977



\$54,026,832



\$6,749,930



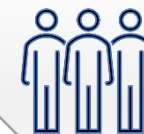
\$27,269,432



\$11,116,219

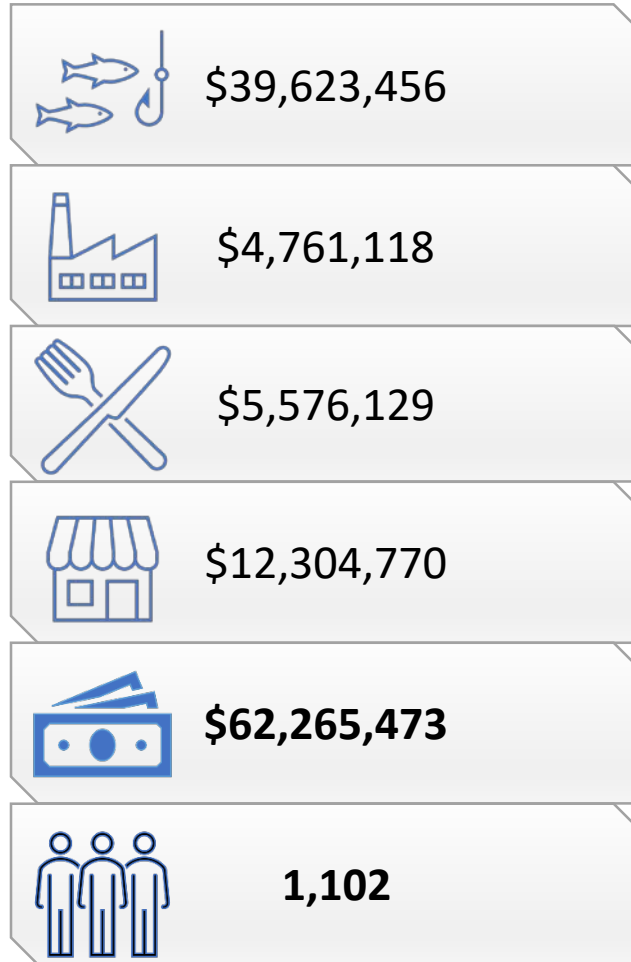


\$99,162,414



1,837

N.C. Impact: Shrimp



Quick Stats on Shrimp Harvesters

Participants: 474

Trips: 6,094

Vessels: 507

N.C. Impact: Crab



Quick Stats on Hard Blue Crab Harvesters

Participants: 656

Trips: 33,356

Vessels: 739



\$39,097,776



\$1,203,054



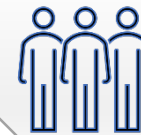
\$2,895,352



\$3,325,038

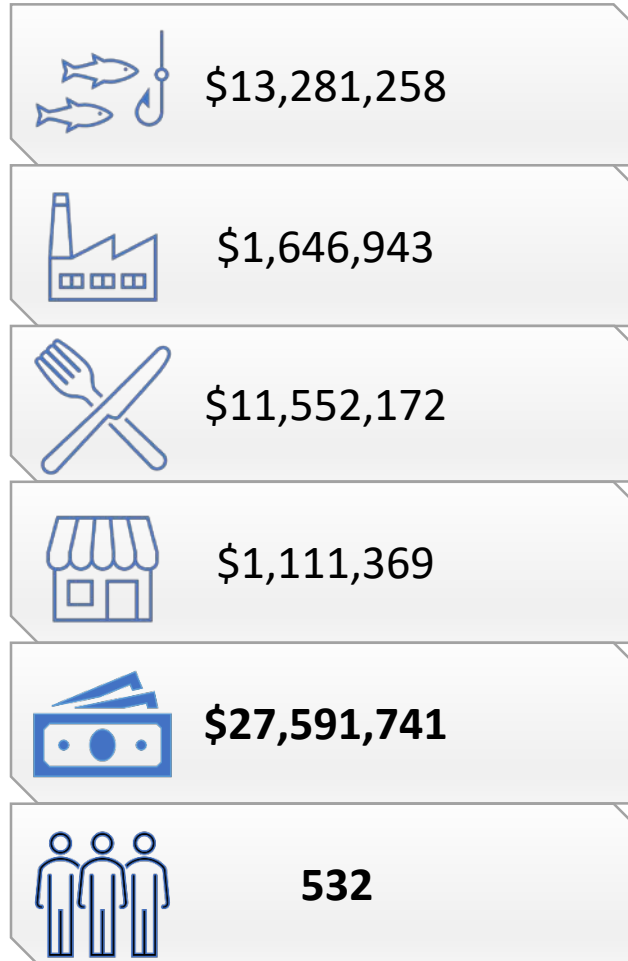


\$46,521,221



887

N.C. Impact: Oysters



Quick Stats on Oyster Harvesters

Participants: 623

Trips: 12,445

Vessels: 523



Key Takeaways

1. Extensive impact beyond the harvesting sector
2. Large downstream impacts:
 - Finfish: Restaurants and retail
 - Shrimp: Retail
 - Crab: Limited
 - Oysters: Restaurants
3. Coastal N.C. sees most impact

Beyond Economic Impact Assessments

- EIA provides aggregate, not marginal, information
 - Key policy challenges like allowable catch and allocation between sectors are marginal
- Degradation of APS ecosystems
 - Likely upriver causes
 - Higher coastal impacts
- Climate change
 - Movement of fish will change amount and distribution of impacts



Fish kill in Pamlico Sound